

FAT-Pointer based range TLB

Akilan Selvacoumar¹, Robert Stewart¹, Hans-Wolfgang Loidl¹, and Ryad Soobhany¹

¹Heriot-Watt University, UK

Abstract

Unikernels are an interesting approach to improve performance by using a slimmed down kernel for a specific task. The following paper benchmarks the parallel performance of unikernels, i.e in a cloud based scenario. The results will be compared against the same application running on a docker container and a monolithic OS as well

Research Questions and Goals

Research Questions:

- (RQ1) Can unikernels be specialised for parallel programs?

Expirement Proposal

Exploiting CHERI pointers

Future Work

- Building a parallel benchmark suite for Unikernels.
- Analysing the metrics provided by the Go compiler such as Heap usage, Number OS threads created by run time etc...
- Benchmarking other Unikernel implementation using the benchmark suite (1)